

2015-1615

United States Court of Appeals
for the Federal Circuit

IN RE CLOUDING CORP.,

Appellant

Appeal from the United States Patent and Trademark Office
Patent Trial and Appeal Board in No. IPR2013-00519

APPELLANT'S BRIEF

FILED ON BEHALF OF: APPELLANT, CLOUDING CORP.

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**CERTIFICATE OF INTEREST AND
CORPORATE DISCLOSURE STATEMENT**

Counsel for Appellant-Patent Owner, Clouding Corp., certifies the following:

1. The full name of every party or amicus represented by me is: **Clouding Corp.**
2. The name of the real party in interest represented by me is: **Clouding Corp.**
3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are: **Marathon Patent Group, Inc.**
4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

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I. STATEMENT OF RELATED CASES

There are no other appeals in or from the proceedings below that were previously before this or any other appellate court. U.S. Patent 7,032,089 (the “’089 Patent”) is currently at issue in *Clouding Corp. v. EMC Corporation et al.*, Case No. 1:14-cv-01178 (DED); and *VMWare, Inc. v. Clouding Corp.*, Case IPR2014-01292, pending before the United States Patent and Trademark Office (“USPTO”) Patent Trial and Appeal Board (“PTAB”).

II. JURISDICTIONAL STATEMENT

This is an appeal under 35 U.S.C. § 141(c) of a final written decision of the USPTO Patent Trial and Appeal Board (“Board”) in *Inter Partes* Review No. 2013-00519, finding claims 1-24 of the ‘089 Patent unpatentable.¹ Patent Owner timely filed and served its Notice of Appeal within the sixty three-day time period established by 37 C.F.R. § 90.3(a) on March 24, 2015.² The Board had

¹ *Rackspace Hosting, Inc. v. Clouding Corp.*, IPR2013-00519, Final Written Decision, Paper 22 at 37 (P.T.A.B. Jan. 29, 2015) (A-37) (hereinafter “Final Written Decision”).

² *Rackspace Hosting, Inc. v. Clouding Corp.*, IPR2013-00519, Patent Owner’s Notice of Appeal, Paper 24 at 1-3 (Mar. 24, 2015) (A-372 – A-375).

jurisdiction over the matter below under 35 U.S.C. § 6(c), and this Court has sole jurisdiction over this appeal under 28 U.S.C. § 1295(a)4(A) and 35 U.S.C. § 141(c).

III. STATEMENT OF ISSUES PRESENTED FOR REVIEW

The issues presented for review are:

- A. Whether the Board erred when construing, according to its broadest reasonable interpretation in light of the specification of the '089 Patent as understood by one of ordinary skill in the art at the time of the invention, the term *relevant data*, as recited in the claims of the '089 Patent, as *data relevant to the purpose for which storage objects are being copied*?
- B. Whether the Board erred in finding claims 1-24 of the '089 Patent anticipated under 35 U.S.C. § 102(b) by International Pub. No. WO 99/12098 ("*Gold*")?
- C. Whether the Board erred in finding claims 1-3, 6, 7, 13, 15, and 16 of the '089 Patent anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,778,389 to Pruett et al. ("*Pruett*")?

IV. STATEMENT OF THE CASE

This case arose from a petition filed under 35 U.S.C. §§ 311-319 by Rackspace Hosting, Inc.³ seeking *inter partes* review of claims 1-24 of the ‘089 Patent.⁴ After considering the issues raised in the petition and Patent Owner Clouding Corp.’s preliminary response, the Board instituted trial to consider whether, under 35 U.S.C. § 102(b), (a) claims 1-24 were anticipated by *Gold*, and (b) claims 1-3, 6, 7, 13, 15, and 16 were anticipated by *Pruett*.⁵ Following an oral hearing on Sept. 24, 2014,⁶ the Board issued its Final Written Decision on Jan. 29, 2015,⁷ finding claims 1-24 anticipated by *Gold*; and claims 1-3, 6, 7, 13, 15, and 16 anticipated by *Pruett*.⁸ Integral to its decision was the Board’s determination that the term “relevant

³ Petitioner Rackspace Hosting, Inc. is not participating in this appeal. *In re Clouding Corp.*, Appeal No. 2015-01615, Order (Fed. Cir. Jun. 3, 2015).

⁴ Final Written Decision at 2 (A-2).

⁵ *Id.* at 3 (A-3).

⁶ *Id.* at 2 (A-2).

⁷ *Id.* at 1 (A-1).

⁸ *Id.* at 37 (A-37).

data,” as appears in all of the claims of the ‘089 Patent,⁹ means “data relevant to the purpose for which storage objects are being copied.”¹⁰ This appeal followed.

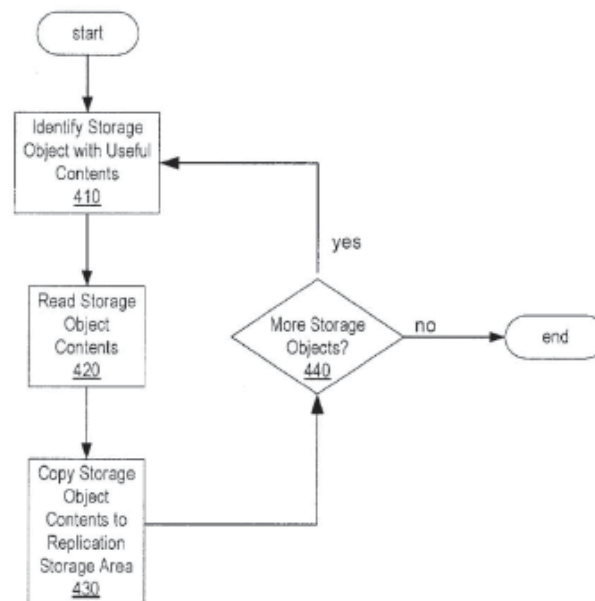
⁹ See independent claims 1 (“determining whether the first storage object contains *relevant data*”), ‘089 Patent at 13:26-27; 7 (“determining whether the first storage object contains *relevant data*”), *id.* at 13:64-65; 9 (“determining means for determining whether the first storage object contains *relevant data*”), *id.* at 14:31-32; 13 (“a determining module configured to determine whether the first storage object contains *relevant data*”), *id.* at 58-59; 17 (“determining instructions configured to determining whether the first storage object contains *relevant data*”), *id.* at 15:22-24; and 21 (“determining instructions configured to determine whether the first storage object contains *relevant data*”), *id.* at 16:13-14 (A-53 – A-54) (emphasis added).

¹⁰ Final Written Decision at 7-10 (A7 – A-10) (construing the term “relevant data”); 24-28 (A-24 – A-28) (analyzing whether *Gold* discloses “determining whether the first storage object contains *relevant data*”); 33-35 (A-33 – A-35) (analyzing whether *Pruett* discloses “determining whether the first storage object contains *relevant data*”).

A. The '089 Patent – Replica Synchronization Using A Copy-On-Read Technique.

The '089 Patent describes and claims systems and methods for synchronizing data maintained in separate storage areas, for example primary and secondary storage areas distributed across a network. More particularly, the '089 Patent claims a so-called “copy-on-read” technique in which, “Units of data that contain information related to the application data are identified and read[, and

**Copy on Read
FIG. 4**



r]elevant units of data are copied to a replication storage area.”¹¹ This process is summarized in Figure 4 of the '089 Patent, reproduced here.¹²

¹¹ '089 Patent at 3:67 – 4:3 (A-48); see also Decl. of Prasant Mohapatra at ¶ 12 (A-805).

¹² '089 Patent at Fig. 4 (A-45).

Prior to the invention described in the '089 Patent, one way in which computer systems replicated their file contents synchronized between primary and secondary storage locations was through a "copy-on-write" technique in which data that had been modified was replicated to the secondary storage locations when that modified data was written to the primary storage location.¹³ Copy-on-write is a technique employed by various operating systems.¹⁴ One drawback of the copy-on-write technique, however, is that it can lead to the copying of data that is not relevant for the application making use of the data.¹⁵

The copy-on-read technique disclosed in the '089 Patent is different than the prior copy-on-write process.¹⁶ Whereas in the copy-on-write mode data is replicated to the secondary storage location when writes are made to the primary storage location, in the copy-on-read mode such replications occur only when

¹³ *Id.* at 3:26-31 (A-48).

¹⁴ Depo. of Dr. Weissman at 27:15-17 (A-748).

¹⁵ '089 Patent at 8:13-15 (A-50).

¹⁶ Depo. of Dr. Weissman at 27:21-22 (A-748).

data is read by an application.¹⁷ This ensures that only useful, relevant data are synchronized to a secondary storage location, allowing the copy-on-read technique to operate efficiently.¹⁸

B. *Gold* – Periodic Data Backup Using File Signatures.

Gold describes a technique for backing up computer files stored on a client computer to tape media connected via a network.¹⁹ According to *Gold*, the client includes a dynamic scheduler module that accesses the client's resources at a scheduled target time to determine if a client backup can run without interfering with system performance.²⁰ If a backup can be performed, a file differencing module (FDM) prepares a list of candidate files on the client for back-up by determining which files have changed or have been added since a previous backup.²¹ The FDM identifies candidate files by reading a current directory tree

¹⁷ *Id.* at 28:2-9 (A-749); '089 Patent at 3:63 – 4:3 (A-48), 4:59 – 5:3 (A-48 – A-49), and 8:58-63 (A-50).

¹⁸ '089 Patent at 5:1-3 (A-48); 9:1-3 (A-51).

¹⁹ *Gold* at Abstract (A-402).

²⁰ *Id.* at 5:24-31 (A-408).

²¹ *Id.* at 7:9-10 (A-410).

of the client's file system, which includes entries identifying each file's time and date of modification.²² Those times and dates are compared to cached times and dates stored in a directory tree file.²³

The FDM also filters out various files (e.g., temporary files, Internet cache files, and swap files) that do not need to be backed up,²⁴ and further communicates with the tape backup system to ensure no redundant copies of files are backed up.²⁵ In this latter operation, the FDM sends a list of proposed files to be backed up, along with calculated cyclic redundancy check ("CRC") codes (corresponding to file name, date and time stamp, and file size information) to the tape backup system, and the tape backup apparatus returns a list of the files it contains that match those on FDM's list along with CRC checksums corresponding to the actual data in the files.²⁶

For each of the potentially redundant files in the list, the FDM generates a respective signature value and compares it with the value returned by the tape

²² *Id.* at 7:11–13 (A-410).

²³ *Id.* (A-410).

²⁴ *Id.* at 7:16–19 (A-410).

²⁵ *Id.* at 7:20–23 (A-410).

²⁶ *Id.* at 7:23–25 (A-410).

backup apparatus.²⁷ In order to compute the “signature,” the file that is the subject of the signature must be read.²⁸ Any redundant files on the list of candidates are marked as such, and (after identifying the actual blocks in the remaining files that have changed) the file transfer is completed.²⁹ Both the block differencing operation and the data transfer occur *after* the computation of the CRC checksum to obtain the file signature.³⁰

C. *Pruett* – Synchronizing Files According to User Specifications.

Pruett describes a technique for synchronizing files between two computers connected by a network.³¹ A user initiates a synchronization by invoking a program and identifying source and target directories along with any optional “qualifiers” that affect the synchronization.³² A “/H” qualifier specifies that hidden files in the source directory are not to be synchronized with the target

²⁷ *Id.* at 7:28-30 (A-410).

²⁸ *Id.* (indicating that signatures are “calculated over the actual file data”).

²⁹ *Id.* at 7:20 – 9:20 (A-410 – A-412).

³⁰ *Id.*

³¹ *Pruett* at Abstract (A-481).

³² *Id.* at 3:1-39 (A-487).

directory.³³

The synchronizing program proceeds by first identifying whether a candidate file in the source directory is a subdirectory or not, and, if not, determining whether a file with that same name exists in the target directory.³⁴ If the file does not exist in the target directory, it is copied from the source directory to the target directory.³⁵ If the file does exist in the target directory, the synchronizing program determines whether the files in the source and target directories have identical contents (by comparing date-time stamps of the files), and, if so, does not copy the contents of the source file into the target file.³⁶ The synchronizing program continues this process sequentially through the files in the source directory until there are no more files to synchronize.³⁷

If the “/H” qualifier was specified at the outset of the process, the synchronizing program will skip determining hidden files during the

³³ *Id.* at 8:29-40 (A-489).

³⁴ *Id.* at 6:18-30 (A-488).

³⁵ *Id.* at 6:31-33 (A-488).

³⁶ *Id.* at 6:42-64 (A-488).

³⁷ *Id.* at 8:22-28 (A-489).

synchronization process.³⁸ If an “/I” qualifier was specified at the outset of the process, an “action” file that specifies an action to be taken when the synchronizing program reaches various source or target subdirectories will be performed.³⁹ One such action can be to ignore a source directory or subdirectory,⁴⁰ in which case the synchronizing program skips that directory or subdirectory.⁴¹

V. SUMMARY OF THE ARGUMENT

The Board’s conclusions of anticipation are based on a faulty construction of the claims and, as such, should be vacated. The claims of ‘089 Patent specify that only “relevant data” is copied from one storage object to another. Indeed, unless a storage object is determined to contain relevant data, that storage object is not even read. Instead, the process moves on to evaluate another storage object. Thus, relevant data is not determined to be such by the fact that it is being copied; rather, it is data determined to be relevant that is copied.

³⁸ *Id.* at 8:29-40 (A-489).

³⁹ *Id.* at 3:55-65 (A-487).

⁴⁰ *Id.* at 5:32-54 (A-488).

⁴¹ *Id.* at 5:50-56 (A-488).

Rather than interpret the claims in accordance with this requirement, the Board erroneously concluded that relevant data is “data relevant to the purpose for which storage objects are being copied.” This construction is both contrary to the teachings of the specification and dismissive of the very invention recited in the claims. By making relevancy turn on the fact of copying, instead of the other way around, the Board’s construction permits exactly the opposite of what is required by the literal language of the claims. Indeed, allowing for the act of copying to determine relevancy means that relevancy is no requirement for copying at all. Further, by adopting a construction that permits data to be read (and therefore copied) before a determination of relevancy is made (*i.e.*, to allow the fact of copying to determine relevancy), the Board improperly expands the scope of the claims. Because such a construction is at odds with that which would be reached by a person of ordinary skill in the art having had the benefit of the teachings of the specification, the construction should be vacated.

When properly construed, it is apparent that claims 1-24 are patentable over *Gold*. As explained above, *Gold* determines files for back up based on whether or not the files were modified and the file type. Redundant files are not backed up. Determining such eligibility for back-up requires reading the files before making a relevancy determination. In other words, Gold teaches (i)

selecting a first storage object of a first storage area; (ii) *reading* the first storage object; and (iii) *determining* whether the first storage object contains relevant data.

In contrast, the claims of the '089 Patent require (i) *selecting* a first storage object of a first storage area; (ii) *determining* whether the first storage object contains relevant data; and (iii) if the first storage object contains relevant data, *reading* the first storage object. As *Gold* fails to teach the arrangement of the elements recited in the claims, Gold cannot anticipate the claims.

Similarly, when properly construed the challenged claims are patentable over *Pruett*. In order to conclude that “relevance is determined before copying” in *Pruett*, the Board had to interpret copying of the data as being determinative of its relevancy. Such an understanding of relevancy reads out the very requirements specified in the claims. Moreover, in *Pruett* the determination of relevancy does not end with a determination as to whether or not a file is hidden (as the Board apparently believed). Instead, determining relevancy also includes determining whether a target file of the same name exists within the target directory and, if so, whether that file has the same date time stamp as the source file. Subject to these determinations, the file may be copied, but there is no indication that the requirements of the claims are met in this process. Indeed,

Pruett is silent as to the copying process itself. Hence, the claims are not anticipated by *Pruett*.

For at least these reasons and as discussed in further detail below, the Board's determinations should be vacated and the case remanded for further proceedings consistent with a proper construction of the claims.

VI. ARGUMENT

A. Standard of Review.

In appeals from the Board, this Court reviews conclusions of law *de novo*⁴² and findings of fact for substantial evidence.⁴³ In particular, claim constructions by the Board are reviewed according to the framework announced in *Teva*: underlying factual determinations concerning extrinsic evidence are reviewed for substantial evidence and the ultimate construction of the claim is reviewed *de novo*.⁴⁴ In this case, because the intrinsic record fully determines the proper construction of the claim terms at issue, this Court reviews the Board's

⁴² *Belkin Int'l, Inc. v. Kappos*, 696 F.3d 1379, 1381 (Fed. Cir. 2012).

⁴³ See *In re Gartside*, 203 F.3d 1305, 1315-16 (Fed. Cir. 2000).

⁴⁴ *Teva Pharmaceuticals U.S.A., Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841-842 (2015).

determinations *de novo*.⁴⁵ Anticipation and prior art teachings present questions of fact, reviewed for substantial evidence.⁴⁶

B. Relevant Data is Data Relevant with Respect to or in the Context of an Application that will Make Use of the Data.

As noted above, by virtue of its inclusion in each of independent claims 1, 7, 9, 13, 17, and 21, every claim of the '089 Patent includes the term “relevant data.” Claim 1, for example, reads:

1. A method comprising:
 - selecting a first storage object of a first storage area;
 - determining whether the first storage object contains relevant data;
 - if the first storage object contains relevant data, performing the following:
 - reading the first storage object; and when the reading is completed, copying contents of the first storage object to a second storage object of a second storage area; and
 - if the first storage object does not contain relevant data, selecting a second storage object of the first storage area

⁴⁵ *Id.*

⁴⁶ *In re NTP, Inc.*, 654 F.3d 1279, 1297 (Fed. Cir. 2011); *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009).

without reading the first storage object and without copying the contents of the first storage object to the second storage object.⁴⁷

The Board construed this term as “data relevant to the purpose for which storage objects are being copied.”⁴⁸ Such a construction, however, is not only at odds with the teachings of the specification (and therefore improper);⁴⁹ it also rewrites the claims to permit exactly the opposite of what is required by their literal language. Hence, the Board’s construction should be vacated.

Although the claims of the ‘089 Patent are interpreted under the so-called “broadest reasonable interpretation” (“BRI”) standard,⁵⁰ it is important to recognize that not *any* reading thereof is permissible. For example, the BRI standard does not permit a legally incorrect interpretation of the claims.⁵¹ Thus, the claims must still be construed “in light of the specification as it would be

⁴⁷ ‘089 Patent at 13:24-38 (A-53).

⁴⁸ Final Written Decision at 7-10 (A7 – A-10).

⁴⁹ *In re Suitco Surface, Inc.*, 604 F. 3d 1255, 1260 (Fed. Cir. 2010) (“claims should always be read in light of the specification and teachings in the underlying patent.”).

⁵⁰ *In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271 (Fed. Cir. 2015).

⁵¹ *In re Skvorecz*, 580 F. 3d 1262, 1267 (Fed. Cir. 2009).

interpreted by one of ordinary skill in the art.”⁵² Indeed, the best source for determining the meaning of the term “relevant data” is the specification itself.⁵³

The specification of the ’089 Patent specifically indicates that, “Storage objects containing data and information relevant to managing the data by a particular application are identified, read, and copied to a secondary storage area.”⁵⁴ To accomplish this task, “Block identifier utility 316A on primary node 110A ensures that only data containing useful, relevant data are read to ensure efficiency of the copy-on-read operation.”⁵⁵ This exposition of “relevant data” and its use is further described at 9:4-23, where the specification reads:

⁵² *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

⁵³ *See, e.g., In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (the USPTO looks to the ordinary use of the claim terms taking into account definitions or other “enlightenment” contained in the written description); *and see In re NTP*, 654 F.3d at 1288 (the Board’s construction “cannot be divorced from the specification and the record evidence”); *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) (the Board’s construction “must be consistent with the one that those skilled in the art would reach”).

⁵⁴ ’089 Patent at 4:64-67 (A-48).

⁵⁵ *Id.* at 9:1-3 (A-51).

For purposes of FIG. 3, assume that each of storage area replication facilities 320A and 320B is currently operating in "copy-on-read" mode. Block identifier utility 316A can be implemented either within an "replication-aware" application enhanced to read *all relevant blocks necessary for operation of the application*, such as an enhanced version of application 112A, database 114A, or file system 115. Alternatively, block identifier utility 316A can be implemented as an application-level utility that systematically reads *all the relevant blocks, and only the relevant blocks*, of the primary storage area 140A. For example, if the application reading the data is a file system, a "file dump" utility may exist that reads *all relevant file data* and provides the contents of those blocks directly to storage area replication facility 120A. As another example, if the primary storage area is used for storage by a replication-aware database, and it is known which tables are kept on this storage area, a query to read those tables generates read operations to read *all the relevant storage objects* in the storage area, including storage objects containing database metadata.⁵⁶

This context underscores the error in the Board's interpretation.

⁵⁶ *Id.* at 9:4-23 (A-51) (emphasis added).

Passages such as the above demonstrate that relevance (as used in the phrase “relevant data”) is not measured or identified with respect to the purpose for which (or the fact that) the data is being copied (as is the case under the Board’s construction), but rather with respect to the application that will make use of the data.⁵⁷ Stated differently, relevant data is not determined to be such by the fact that it is being copied (as the Board’s construction prescribes), rather it is data determined to be relevant (by virtue of the application that will use the data) that is copied. Such a construction is consistent with the understanding of the person of ordinary skill in the art.⁵⁸

In contrast to this properly understood meaning of the term “relevant data,” the Board determined that the phrase could be understood as “data relevant to the purpose for which storage objects are being copied.”⁵⁹ Such a construction, however, turns the requirement that data be determined to be relevant before it is

⁵⁷ Decl. of Prasant Mohapatra at ¶¶ 15, 16 (A-806 – A-808).

⁵⁸ *Id.* at ¶ 16 (A-807 – A-808); and see *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (Claim terms are given their ordinary and accustomed meaning as understood by one of ordinary skill in the art.).

⁵⁹ Final Written Decision at 7-10 (A7 – A-10).

copied⁶⁰ on its head and makes the fact of copying determinative of relevancy.

Consider, for example, that claim 1 requires “determining whether the first storage object contains relevant data,” and then taking action (such as reading and copying the contents of the first storage object or selecting a second storage object) based on the outcome of that determination.⁶¹ Under the Board’s construction, however, copying the data will determine the data’s relevancy. Such an outcome is nonsensical in the context of the ‘089 Patent. As explained by the inventors, in data replication operations what is needed is a solution that “should avoid replicating unnecessary information and enable data to be quickly synchronized across a network or locally.”⁶² By adopting a construction that permits data to be copied (*i.e.*, replicated) before a determination of relevancy is

⁶⁰ See, e.g., ‘089 Patent at 4:64 – 5:3 (A-48 – A-49) (“Storage objects containing data and information relevant to managing the data by a particular application are identified, read, and copied to a secondary storage area. This process avoids reading non-useful data”); Abstract (A-41) (“Storage objects containing data and information relevant to managing the data by a particular application are identified, and only those storage objects are read.”).

⁶¹ *Id.* at 13:26-38 (A-53).

⁶² *Id.* at 3:56-59 (A-48).

made (*i.e.*, to allow the fact of copying to determine relevancy), the Board improperly expands the scope of the claims to encompass exactly those scenarios that the inventors deemed undesirable. In fact, allowing for the act of copying to determine relevancy means that relevancy is no filter to copying at all. That is, there is no ability for a relevancy determination to act as a check on the copying of unnecessary data as intended by the inventors.

The Board further complicates the question of the proper construction of “relevant data” by confusing its own position with that advocated by the Patent Owner. In response to questions posed by the Board, counsel for the Patent Owner explained:

In other words, the patentee is trying to impress upon the reader the fact that it is the fact that the application that is running, that is doing the reading, frankly, is the one that is going to be making use of the data, it is managing the data as part of its use, and that that is how relevance is assessed.

So Judge Chang gave the example of a word processing program and data being read as you are creating a document or editing a document. So it is the fact that the data is relevant to the word processing program that makes it relevant, the fact that the data is being used by that word processing program that makes it relevant. The spreadsheet program might use

different data that it uses.⁶³

As this excerpt makes clear, the argument advanced by the Patent Owner is that relevancy is assessed in the context of the application making use of (*e.g.*, managing) the data (“it is the fact that the application that is running, that is doing the reading, frankly, is the one that is going to be making use of the data, it is managing the data as part of its use, and that that is how relevance is assessed.”).

Where the Board seemed to be confused is when the operation of a backup program was discussed:

JUDGE McKONE: What about a backup program, what is relevant to a backup application?

MR. FAHMI: Well, what is relevant to the backup application is the data that it relies upon for its operation rather than the data it operates upon. The data that it operates upon is merely, you know, what is being backed up. Whereas the data that is relevant for it would be its operating parameters, for example.⁶⁴

⁶³ Tr. 33:10-22 (A-340).

⁶⁴ *Id.* at 33:23 – 34:5 (A-340 – A-341).

Contrary to the Board's interpretation of this statement, the Patent Owner was explicitly recognizing that one cannot assess relevancy (as recited in the claims) simply by noting the fact of copying. The data being operated on by a backup program (*i.e.*, the data that is subject to replication) is not made relevant simply by its being copied. Indeed, Patent Owner was clear on this point:

JUDGE LEE: What is the real difference between what you want and what we had preliminarily adopted?

MR. FAHMI: Thank you, Your Honor. So I think what your preliminary interpretation relies upon is that it is the result of copying that determines relevance. And we think it is actually that the claim requires the opposite, that it is the fact of relevance that determines copying.

And relevance is assessed in the context of the application that will make use of the data, as opposed to just the data that is operated upon.⁶⁵

The inherent contradictory nature of the Board's construction is further revealed when one considers its analysis vis-à-vis *Gold*. According to the Board, "the claim language 'if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first

⁶⁵ *Id.* at 34:6-15 (A341).

storage object’ pertains to the behavior of the claimed method after a relevancy determination has been made. . . . We conclude that nothing in claim 1 precludes reading before or during a relevancy determination.”⁶⁶ This rationale (which is premised on interpreting relevant data as “data relevant to the purpose for which storage objects are being copied”) ignores the very essence of the invention to which the claims are directed and therefore irreconcilably disconnects the claims from the understanding thereof that would be had by a person of ordinary skill in the art.

The purpose of the patentee’s invention was to “avoid replicating unnecessary information and enable data to be quickly synchronized across a network or locally.”⁶⁷ The solution created to achieve this goal was a “copy-on-read” technique in which “Storage objects containing data and information relevant to managing the data by a particular application are identified, read, and copied to a secondary storage area.”⁶⁸ Importantly, the solution avoids reading and duplicating non-useful data, thus “*only* data containing useful, relevant data are read to ensure efficiency of the copy-on-read operation.”⁶⁹ This criterion of

⁶⁶ Final Written Decision at 27 (A-27).

⁶⁷ ‘089 Patent at 3:57-59 (A-48).

⁶⁸ *Id.* at 4:59-67 (A-48).

⁶⁹ *Id.* at 9:1-3 (A-51) (emphasis added).

reading (and subsequently copying) only relevant data is enforced by having the relevant data identified in advance of any read (and copy) operation.⁷⁰

Under the Board's construction, the claim should be read to permit some unmentioned read operation prior to the determination of relevancy.⁷¹ But because, in the copy-on-read mode of the invention, reading the data begets copying the data,⁷² the (unmentioned) read operation envisioned by the Board would necessarily result in the copying of the data so read. Moreover, all this would occur "prior to a relevancy determination."⁷³ Thus, the Board's construction of the claim eliminates the use of relevancy as a prerequisite for reading and copying the data, the very invention being advocated by the patentee.

The Board attempts to justify its reading of the claim by highlighting the fact that the claim uses the term "comprising." According to the Board, "The

⁷⁰ *Id.* at 9:45-55; 10:15-24 (A-51); and see *id.* at 9:6-23; 11:27-55 (providing examples of routines that may be used to implement the relevancy determination) (A-51 – A-52).

⁷¹ Final Written Decision at 27 (A-27).

⁷² '089 Patent at 8:62-65 (A-50); and see Final Written Decision at 4 (recognizing the nature of copy-on-read) (A-4).

⁷³ Final Written decision at 27 (A-27).

word ‘comprising’ in the transitional phrase of a patent claim creates a presumption that the body of the claim is open[, and it] is not a weasel word with which to abrogate claim limitations.”⁷⁴ While true, it is also the case that “The broadest-construction rubric coupled with the term ‘comprising’ does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent.”⁷⁵ Indeed, any effort to understand a claim (even under the BRI standard) must accept and apply the proposition that, unless otherwise indicated, patentees use words in accordance with their plain and ordinary meaning.⁷⁶ In determining this plain meaning, context (as evidenced by the specification, for example) always matters. Indeed, it

⁷⁴ *Id.* citing *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1350 (Fed. Cir. 2001); and *Spectrum Int’l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1380 (Fed. Cir. 1998).

⁷⁵ *In re Suitco Surface, Inc.*, 603 F.3d at 1260 citing *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 (1940).

⁷⁶ *Phillips*, 415 F.3d at 1312-13.

is the most basic of tools for understanding the terms of the claim.⁷⁷ Moreover, sound interpretation requires paying attention to the claim as a whole.⁷⁸

The Board’s construction of the claims, premised on its interpretation of “relevant data” as “data relevant to the purpose for which storage objects are being copied,” may seem plain, however, as demonstrated above, such a reading turns out to be untenable in light of the claim as a whole. The Board’s construction gives the requirement of relevancy no purpose at all. Rather than acting as the determinative factor for reading and copying of data (as intended by the patentee),⁷⁹ relevancy is made irrelevant—either as a synonym for copying or by being usurped by an unmentioned reading operation not specifically prohibited.

Only by construing “relevant data” as “data relevant with respect to or in the context of an application that will make use of the data” do the claims, as a whole, comport with the context and purpose of the invention. Only this

⁷⁷ *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364.

⁷⁸ *Cf. Diamond v. Diehr*, 450 U. S. 175, 188 (1981); *and see Parker v. Flook*, 437 U. S. 584, 594 (1978).

⁷⁹ ‘089 Patent at Abstract (“Storage objects containing data and information relevant to managing the data by a particular application are identified, and only those storage objects are read.”) (A-41).

interpretation of the claims admits an understanding of the context that relevancy is a necessary prerequisite for reading and copying of the data. In other words, it is this interpretation, and not the Board's, that is consistent with the understanding of a person of ordinary skill in the art.⁸⁰ To read out this requirement and expand the meaning of the claims to encompass scenarios in which no such constraints on reading and copying of the data exist, as is the case with the Board's construction, is to divorce the claims from their supporting specification. Accordingly, because the Board's construction is at odds with the understanding of the claims from the standpoint of the person of ordinary skill in the art, that construction should be vacated.

C. *Gold* Fails to Anticipate the Present Claims Because *Gold* Does Not Teach Determining Whether a Storage Object Contains Relevant Data Before Reading the Storage Object.

The Board held claims 1-24 invalid as being anticipated by *Gold*.⁸¹ In doing so, however, the Board applied its erroneous claim construction to find that *Gold* "discloses 'determining whether the first storage object contains relevant data,' as recited in claims 1 and 7 and the similar limitations in claims 9,

⁸⁰ Decl. of Prasant Mohapatra at ¶ 15 (A-806 – A-807).

⁸¹ Final Written Decision at 37 (A-37).

13, 17, and 21.”⁸² Because this conclusion rests on a claim interpretation that should be vacated by this Court, the Board’s holding with respect to *Gold* should likewise be vacated and this proceeding remanded for further determinations in light of the proper construction of the claims.

As explained above, *Gold* describes a scheme in which a file differencing module of a backup agent determines which files to back up according to which files have been changed or modified since a previous back up.⁸³ Files so modified are determined based on time stamps.⁸⁴ Before backing up the modified files, however, the list of candidate files is filtered to remove “excluded files” such as temporary files, Internet cache files, swap files, etc.⁸⁵ Excluded files are determined based on network administrator- and user-defined policies.⁸⁶ Thus, *Gold* determines files for back up based on whether or not the files were modified and the file type.⁸⁷

⁸² *Id.* at 27 (A-27).

⁸³ *Gold* at 7:9-10 (A-410).

⁸⁴ *Id.* at 7:11-14 (A-410).

⁸⁵ *Id.* at 7:16-17 (A-410).

⁸⁶ *Id.* at 7:17-19 (A-410).

⁸⁷ Decl. of Prasant Mohapatra at ¶ 29 (A-817 – A-818).

Considering claim 1 of the ‘089 Patent, the recited sequence of operations is (i) selecting a first storage object of a first storage area; (ii) determining whether the first storage object contains relevant data; and (iii) if the first storage object contains relevant data, reading the first storage object.⁸⁸ That is, and as described above, before the first storage object is read and copied (the reading operation invoking the copying in a “copy-on-read” scheme),⁸⁹ a determination is made as to whether the first storage object contains relevant data.⁹⁰ Such an operation does not take place in the system described by *Gold*.⁹¹

Instead, in the *Gold* system, a file differencing module selects files for backup by first reading a current directory tree of a local file system and checking each file’s modified time/date stamp against cached entries for same from the last backup.⁹² When questioned on this subject, Petitioner’s expert, Dr. Weissman, agreed that reading the current directory tree involved reading a storage object:⁹³

⁸⁸ ‘089 Patent at 13:24-30 (A-53).

⁸⁹ *Id.* at 9:56-65 (A-51) (describing how data reads are intercepted so that the subject data can be copied to a secondary storage facility).

⁹⁰ *Id.* at 13:24-30 (A-53); Decl. of Prasant Mohapatra at ¶ 30 (A-818).

⁹¹ Decl. of Prasant Mohapatra at ¶ 30 (A-818).

⁹² *Gold* at 7:9-15 (A-410); Decl. of Prasant Mohapatra at ¶ 31 (A-818 – A-819).

17 Q So does reading the current directory
18 tree of a local file system involve reading a
19 storage object?
20 A Yes.

As explained by Dr. Weissman, the storage object being read includes the files contained within the directory.⁹⁴

After the current directory tree of the local file system is read, the *Gold* system makes a determination about which files are redundant and need not be copied.⁹⁵ As part of this procedure, *Gold* specifies generating a *signature* of a candidate file and comparing that signature with a cyclic redundancy check (CRC) value returned by the tape backup apparatus.⁹⁶ In order to compute the *signature*, the file is *read*.⁹⁷ Inasmuch as the determination as to whether or not to copy the file (*i.e.*, the determination as to whether or not the file is “relevant”) depends on the outcome of the comparison between the signature and the CRC

⁹³ Depo. of Dr. Weissman at 40:17-20 (A-761).

⁹⁴ *Id.* at 40:21 – 41:3 (A-761 – A-762).

⁹⁵ *Gold* at 7:20-30 (A-410); Decl. of Prasant Mohapatra at ¶ 31 (A-818 – A-819).

⁹⁶ *Gold* at 7:20-30 (A-410).

⁹⁷ *Id.* (indicating that signatures are “calculated over the actual file data”).

value, it necessarily follows that the relevancy determination occurs *after* the file has been read and the signature computed.

Thus, assuming the Board was correct in equating *Gold's* determination of file redundancy as determining whether a first storage object contains relevant data, then the process described by Gold is: (i) selecting a first storage object of a first storage area (*i.e.*, by reading the directory tree); (ii) reading the first storage object (*e.g.*, to generate a signature); and (iii) determining whether the first storage object contains relevant data.⁹⁸ Because both selecting a file for backup (*i.e.*, by reading the directory tree) and determining whether or not to copy the file (*i.e.*, based on the outcome of the comparison between a signature generated by reading the file and a CRC value) involve reading the file, it necessarily follows that the relevancy determination occurs *after* the file has been read. Claim 1, on the other hand, recites exactly the opposite inasmuch as “determining whether the first storage object contains relevant data” occurs before the first storage object is read.

⁹⁸ Decl. of Prasant Mohapatra at ¶ 31 (A-818 – A-819).

A patent claim is “invalid for anticipation [only] if a single prior art reference discloses each and every limitation” of the claim.⁹⁹ Each element, and the “arrangement or combination” of those elements, must be present in the prior art reference.¹⁰⁰ Accordingly, “there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.”¹⁰¹

Here, *Gold* fails to meet these requirements. A side-by-side comparison of the limitations of claim 1 and the process described by *Gold* demonstrates the important differences:

Claim 1	<i>Gold</i>
(i) selecting a first storage object of a first storage area;	(i) selecting a first storage object of a first storage area;
(ii) determining whether the first storage object contains relevant	(ii) reading the first storage object; and

⁹⁹ *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003); *see also Zenith Elecs. Corp. v. PDI Commc’ns Sys., Inc.*, 522 F.3d 1348, 1363 (Fed. Cir. 2008).

¹⁰⁰ *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

¹⁰¹ *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991).

data; and	
(iii) if the first storage object contains relevant data, reading the first storage object	(iii) determining whether the first storage object contains relevant data

As is readily evident from this tabular illustration, *Gold* fails to teach the “arrangement or combination” of the elements recited in the claim and, therefore, cannot anticipate claim 1.¹⁰²

Similar to claim 1, independent claims 7, 9, 13, 17, and 21 each require that a determination of whether a first storage object contains relevant data be made before the first storage object is read.¹⁰³ As demonstrated above, *Gold* fails to teach such systems or methods, instead describing a scheme in which a storage object is read prior to determining whether the storage object contains relevant data.¹⁰⁴ Accordingly, *Gold* cannot anticipate any of claims 7, 9, 13, 17, and 21.

¹⁰² *Net MoneyIN*, 545 F.3d at 1371; *Scripps Clinic & Research Found.*, 927 F.2d at 1576.

¹⁰³ ‘089 Patent at 13:64 – 14:16 (claim 7); 14:31-34 (claim 9); 14:58-61 (claim 13); 15:22-27 (claim 17); 16:12-15 (claim 21) (A-53 – A-54).

¹⁰⁴ Decl. of Prasant Mohapatra at ¶¶ 31, 33 A-818 – A-819).

Claims 2-6 depend from claim 1, claim 8 depends from claim 7, claims 10-12 depend from claim 9, claims 14-16 depend from claim 13, claims 18-20 depend from claim 17, and claims 22-24 depend from claim 21. Each respective dependent claim includes all of the limitations of its respective parent claim¹⁰⁵ and, therefore, is patentable over *Gold* for at least the same reasons as its respective parent claim.

D. *Pruett* Fails to Anticipate the Challenged Claims.

The Board held claims 1-3, 6, 7, 13, 15, and 16 invalid as being anticipated by *Pruett*.¹⁰⁶ As was the case with *Gold*, however, this determination rested on the Board's erroneous claim construction.¹⁰⁷ Thus, like the Board's decision with respect to *Gold*, its decision with respect to *Pruett* should be vacated and remanded for further determinations using the correct claim construction.

With respect to *Pruett*, the Board believed that "relevance is determined before copying."¹⁰⁸ To reach this conclusion, however, the Board had to interpret

¹⁰⁵ 35 U.S.C. § 112 ¶ 4 (2003).

¹⁰⁶ Final Written Decision at 37 (A-37).

¹⁰⁷ *Id.* at 34 (A-34).

¹⁰⁸ *Id.* at 35 (A-35).

the copying of the data itself as being determinative of its relevancy.¹⁰⁹ As discussed above, this understanding of relevancy is improper.

Under the Board’s interpretation, the determination about whether or not to copy a file is made not according to the role a file will play in the context of the application that will make use of the file, but rather according to whether or not the user wishes to have the file copied.¹¹⁰ This is not what is recited in the claims of the ‘089 Patent. Simply because a user does not wish to back up a particular file or directory (hidden or otherwise) does not mean that the application that will make use of that file does not consider the file to be relevant.¹¹¹

¹⁰⁹ *Id.* at 34-35 (A-34 – A-35) (“Pruett’s method makes a determination as to whether a file is hidden (and thus is not subject to backup) before copying the file. . . . Copying (at steps 230 and 242 of Figure 2B) only takes place if the method proceeds to step 210 rather than 205.”).

¹¹⁰ *Pruett* at 5:40-43, 8:29-40 (A-488, A-489); Decl. of Prasant Mohapatra at ¶ 37 (A-821).

¹¹¹ Decl. of Prasant Mohapatra at ¶¶ 35-36 (A-820 – A-821). Even Petitioner’s declarant, Dr. Weissman, admitted that when considering “useful” files, one needs to know what role a file will play in the application in order to determine

In the general case, the synchronization process described by *Pruett* copies files between the source and the target directories. However, when an /H qualifier is set, so-called hidden files are not copied.¹¹² On the other hand, if the /H qualifier is set but a file is not hidden, the file is subject to copying.¹¹³

In *Pruett*, files subject to copying are further evaluated to determine if a corresponding file of the same name exists in the target directory and whether the

whether the file is useful or not, Depo. of Dr. Weissman at 36:12-15 (A-757), and *Pruett* makes no such distinctions.

¹¹² Petitioner’s declarant explained that “hidden files” are “file[s] designated to not show up in a listing of a directory containing that file.” Depo. of Dr. Weissman at 34:14-17 (A-755).

¹¹³ *Pruett* at 8:29-40 (A-489). Another situation in which information is not synchronized between source and target directories is if the user has marked a directory or subdirectory to be ignored. *Id.* at 5:40-43 (A-488); Decl. of Prasant Mohapatra at ¶ 35 (A-820 – A-821). Thus, in all instances in *Pruett*, the determination as to whether or not a file has “relevant” data and therefore is synchronized or not is based on a user’s specified instructions. Decl. of Prasant Mohapatra at ¶ 35 (A-820 – A-821).

date time stamps of the two files are the same.¹¹⁴ If the date time stamps are different, the contents of the source file are copied into the target file.¹¹⁵ Thus, in *Pruett*, the determination of relevancy does not end with a determination as to whether or not a file is hidden (as the Board apparently believed). Instead, determining relevancy also includes determining whether a target file of the same name exists and, if so, whether that file has the same date time stamp as the source file. Subject to these determinations, the file may be copied, but there is no indication in *Pruett* that the file is first read and that only when the reading is completed is the copying performed, as required by claim 1. Indeed, *Pruett* is silent as to the copying process itself. Even if copying involves reading a file, there is nothing in *Pruett* that indicates the reading of the file must be complete before the copying takes place, as hypothesized by the Board. Hence, claim 1 is not anticipated by *Pruett*.¹¹⁶

¹¹⁴ *Pruett* at 6:27-30, 42-52 (A-488).

¹¹⁵ *Id.* at 6:64-67 (A-488).

¹¹⁶ *Schering Corp., supra*, 339 F.3d at 1377 (a patent claim is invalid for anticipation only if a single prior art reference discloses each and every limitation of the claim).

Independent claims 7 and 13 include similar limitations as claim 1 and therefore are patentable over *Pruett* for at least the same reasons as claim 1. Claims 2, 3, and 6 depend from claim 1, and claims 15 and 16 depend from claim 13. Each respective dependent claim includes all of the limitations of its respective parent claim¹¹⁷ and, therefore, is patentable over *Pruett* for at least the same reasons as its respective parent claim.

VII. CONCLUSION

For at least the forgoing reasons, the Board's patentability determinations concerning claims 1-24 should be vacated and the case remanded for further determinations consistent with the correct construction of the claims.

Date: June 26, 2015

Respectfully submitted,

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¹¹⁷ 35 U.S.C. § 112 ¶ 4 (2003).

ADDENDUM

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Paper 22
Entered: January 29, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RACKSPACE HOSTING, INC.,
Petitioner,

v.

CLOUDING CORP.,
Patent Owner.

Case IPR2013-00519
Patent 7,032,089 B1

Before JAMESON LEE, JONI Y. CHANG, and DAVID C. McKONE,
Administrative Patent Judges.

McKONE, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

IPR2013-00519
Patent 7,032,089 B1

I. INTRODUCTION

A. Background

Rackspace Hosting, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims 1–24 of U.S. Patent No. 7,032,089 B1 (Ex. 1001, “the ’089 patent”). Clouding Corp.¹ (“Patent Owner”) filed a Preliminary Response (Paper 5, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, in our Decision to Institute (Paper 6, “Dec.”), we instituted this proceeding as to all of the challenged claims of the ’089 patent.

During this trial, Patent Owner filed a Patent Owner Response (Paper 10, “PO Resp.”) and Petitioner filed a Reply to the Patent Owner Response (Paper 12, “Reply”). An oral hearing was held on September 24, 2014 (Paper 21, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This decision is a final written decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims. Based on the record before us, Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 are unpatentable.

¹ The Petition named Clouding IP, LLC, as the patent owner. Clouding Corp., however, represents that it obtained the ’089 patent from Clouding IP, LLC. Paper 18, at 1.

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B. Related Proceedings

Patent Owner has asserted the '089 patent against Petitioner in *Clouding IP, LLC v. Rackspace Hosting, Inc.*, Case No. 1:12-cv-00675 (D. Del.). Pet. 2–3; Paper 4, at 1–2.

Patent Owner has asserted the '089 patent in six additional proceedings, against other parties, in the United States District Court for the District of Delaware. Pet. 3; Paper 4, at 1–2.

C. References Relied Upon

Petitioner relies upon the following prior art references:

Gold (Ex. 1003)	WO 99/12098	Mar. 11, 1999
Pruett (Ex. 1005)	US 5,778,389	July 7, 1998

D. Grounds of Unpatentability

We instituted this proceeding based on the grounds of unpatentability set forth in the table below. Dec. 28.

References	Basis	Claims challenged
Gold	35 U.S.C. § 102(b)	1–24
Pruett	35 U.S.C. § 102(b)	1–3, 6, 7, 13, 15, 16

E. The '089 Patent

The '089 patent generally relates to synchronizing computer data replicated in different storage areas for backup and disaster recovery purposes. Ex. 1001, 1:15–18. For example, the '089 patent describes a system with a primary node (e.g., a computer) coupled by a network to a

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secondary, or backup, node. *Id.* at Figs. 1, 3. One feature of this system is that the secondary node includes the same data as the primary node, such that, if the primary node fails, the secondary node, using the replicated data, can take over. *Id.* at 5:36–41, 6:56–62.

The '089 patent describes a “copy on read” replication technique that copies data from the primary node to the secondary node after the data is read from the primary node’s storage area. *Id.* at 8:62–65. Figure 3, reproduced below, illustrates an example:

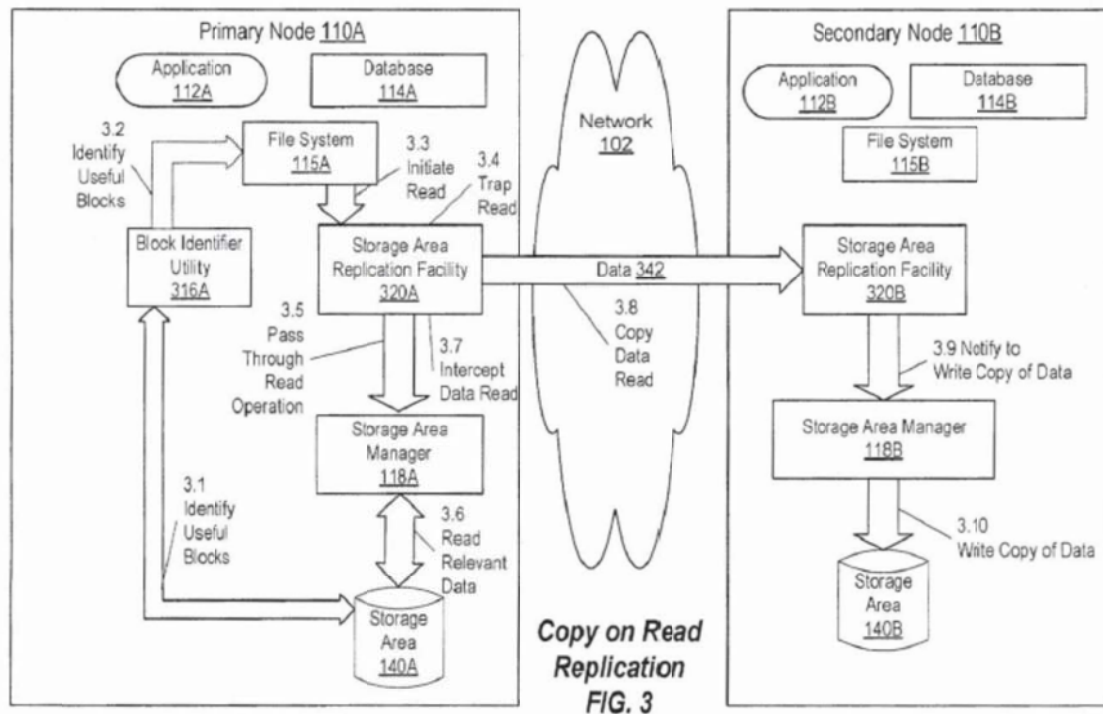


Figure 3 is a flow diagram of a copy-on-read operation used for replication. *Id.* at 4:17–19.

According to the '089 patent, not all data in the storage area of the primary node is “relevant” to an application managing the data on the secondary node. *Id.* at 8:12–17. To avoid replicating irrelevant data, the primary node of Figure 3 includes block identifier 316A at primary node

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110A that identifies “useful” blocks of data (“storage objects”) for copying to the secondary node *Id.* at 8:18–27.

Block identifier 316A identifies relevant blocks to read and sends a message to storage area manager 118A, which reads the relevant data from storage area 140A. *Id.* at 9:24–47. Storage area replication facility 320A intercepts this message and allows the message to pass through to storage area manager 118A, which retrieves the data from the primary node’s storage area 140A. *Id.* at 9:48–55. After storage area manager 118A retrieves the relevant data, the data is intercepted by storage area replication facility 320A and sent to storage area replication facility 320B at secondary node 110B. *Id.* at 9:56–59.

According to the ’089 patent, the block to be copied to the secondary node can be compared to a corresponding block already stored on the secondary node’s storage area, for example, by comparing their checksums. *Id.* at 10:46–56. If the checksums match, there is no need to copy the data—it already is replicated. *Id.* at 10:59–62.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method comprising:
 - selecting a first storage object of a first storage area;
 - determining whether the first storage object contains relevant data;
 - if the first storage object contains relevant data, performing the following:
 - reading the first storage object; and

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when the reading is completed, copying contents of the first storage object to a second storage object of a second storage area; and

if the first storage object does not contain relevant data,

selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object.

II. ANALYSIS

A. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b).² Claim terms generally are given

² Patent Owner contends that we should apply the claim construction framework used by district courts rather than the broadest reasonable interpretation. PO Resp. 4–5 n.1. Patent Owner argues that applying the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), would result in adoption of its proposed construction of “relevant data.” *Id.* Patent Owner’s recitation of the claim construction standard for *inter partes* review is incorrect. According to our rules, the Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b). Moreover, even if we applied the *Phillips* standard, Patent Owner’s proposed construction of “relevant data” still would be inappropriate. As we explain below, the Specification of the ’089 patent provides examples in which relevant data are data operated on by an application and, thus, relevant data are not restricted to data that an application uses to function. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (A claim construction that excludes a preferred embodiment “is rarely, if ever, correct and would require highly persuasive evidentiary support.”).

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their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

1. “*relevant data*” / “*determin[e/ing] whether the first storage object contains relevant data*”

Claim 1 recites “determining whether [a] first storage object contains *relevant data*” (emphasis added). Independent claims 7, 9, 13, 17, and 21 include similar recitations. In the Decision to Institute, we preliminarily construed “relevant data” to mean data relevant to the purpose for which storage objects are being copied. Dec. 7.

In its Response, Patent Owner proposes construing “relevant data” to mean “data relevant with respect to or in the context of an application that will make use of the data.” PO Resp. 8. According to Patent Owner, several passages in the ’089 patent’s Specification demonstrate that relevance is measured in the context of an application that will make use of the data, rather than with respect to the purpose for which the data is being copied, as we preliminarily construed the term. *Id.* For example, Patent Owner points to the ’089 patent’s description that block identifier utility 316A can be implemented with a “‘replication-aware’ application enhanced to read *all relevant blocks necessary for operation of the application*, such as an enhanced version of application 112A, database 114A, or file system 115.” Ex. 1001, 9:6–10 (emphasis added). The passage continues by describing that “if the application reading the data is a file system, a ‘file dump’ utility may exist that reads *all relevant file data* and provides the contents of those

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blocks directly to storage area replication facility 120A.” *Id.* at 9:14–17 (emphasis added).

Asked at the oral hearing to differentiate its proposed construction from our preliminary construction, Patent Owner argued that relevant data are data that an application relies upon for its operation rather than the data it operates upon. Tr. 33:23–34:15. Patent Owner made this distinction in addressing Gold, which, as explained below, describes a file backup utility. According to Patent Owner, under its proposed construction, relevant data are those data that the backup utility needs to operate while, under our preliminary construction, relevant data are limited to the files that are backed up by the utility. *Id.*

Patent Owner’s characterization of our preliminary construction is incorrect. Data relevant to the purpose for which storage objects are being copied does not exclude either the data relevant to the operation of an application or the data operated on by the application. Moreover, Patent Owner’s distinction is not captured in its proposed construction. “Data relevant with respect to or in the context of an application that will make use of the data,” by its terms, covers both data used by an application to function and the data on which the application functions. Thus, we do not see a meaningful distinction between Patent Owner’s proposed construction and our preliminary construction.

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In any case, we disagree that the Specification limits the claims in the way argued by Patent Owner. For example, the Specification includes several other passages discussing “relevant data,” including:

“Storage objects containing data and information *relevant to managing the data by a particular application*”
Ex. 1001, 4:65–66 (emphasis added);

“Not all of the data in each block is necessarily *relevant for operation of the application managing the data* on a remote node.” *Id.* at 8:13–15 (emphasis added);

“In ‘Identify Primary Storage Object with Useful Contents’ step 510, an application or utility capable of identifying *storage objects with data or information used for managing the data* identifies a storage object with useful contents.” *Id.* at 10:42–46 (emphasis added);

“Establishing a ‘copy on-read’ mode in the storage area replication facility is the first step; however, a utility must be used that will *identify relevant data* blocks. For example, some file systems include utilities that walk through all the on-disk data structures, *but most of them will not necessarily read every useful data block of a file*. Some file systems include a ‘dump’ utility that traverses all the data structures as well as the data blocks, so such utilities can be good candidates for identifying relevant blocks.” *Id.* at 11:27–35 (emphases added).

These passages describe various different examples of relevant data, including data relevant to an application’s operation, data relevant to an application’s management of data, and the data operated on by an application (traversed by a file dump utility). In another example, the ’089 patent explains that, “[i]n ‘Identify Storage Object with Useful Contents’ step 410, an application or utility capable of identifying storage objects of data or information used for managing the data identifies a useful storage

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object.” *Id.* at 10:16–19. Here, useful data³ are either data the application needs to function or data on which the application operates.

Thus, assuming Patent Owner’s proposal does exclude the data operated on by an application, it is too narrow in light of the Specification’s examples in which relevant data are the files traversed (operated on) by a utility rather than the data necessary for the utility itself to function. Ex. 1001, 11:27–35. Accordingly, we maintain our construction of “relevant data” as “data relevant to the purpose for which storage objects are being copied.”

2. “*storage area*”

Claim 1 recites “selecting a first storage object of a first *storage area*” and “copying contents of the first storage object to a second storage object of a second *storage area*” (emphases added). Independent claims 7, 9, 13, 17, and 21 include similar recitations. In the Decision to Institute, we construed “storage area” as “a location in which data is stored,” and made clear that “storage area” is not limited to “a storage volume,” and that it is distinct

³ The parties continue to dispute whether “relevant data” and “useful data” are synonymous. PO Resp. 9–11; Reply 3–6. We note that, in identifying structure corresponding to “determining means for determining whether the first storage object contains relevant data,” Patent Owner identifies disclosure alternately describing a block identifier utility performing an algorithm to identify “relevant blocks,” “useful blocks,” and “relevant, useful blocks.” PO Resp. 15 (citing Ex. 1001, 8:25–27, 9:11–13, 9:37–44). These are just some of the examples supporting our conclusion (Dec. 6) that the ’089 patent uses “relevant” and “useful” synonymously, a conclusion we maintain. Neither party, however, adequately explains why this distinction, or lack thereof, has any bearing on the issues in this case.

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from a file system. Dec. 7–8. Petitioner and Patent Owner do not dispute this construction. We see no reason to change this construction based on the full record and maintain it for purposes of this Decision.

3. “*copy-on-read mode*”

The term “copy-on-read mode” appears in dependent claims 10, 14, 18, and 22. We preliminarily construed “copy-on-read mode” to mean “a mode where data are read from one storage area and subsequently copied to another storage area.” Petitioner and Patent Owner do not dispute this construction. We see no reason to change this construction based on the full record and maintain it for purposes of this Decision.

4. *Means-Plus-Function Terms*

Claims 9–12 recite claim elements in “means-plus-function” format. “An element in a claim for a combination may be expressed as a means . . . for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6.⁴ The United States Court of Appeals for the Federal Circuit stated: “Section 112, ¶ 6 recites a mandatory procedure for interpreting the meaning of a means- or step-plus-function claim element. These claim limitations ‘shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.’” *Al-Site Corp. v. VSI Int’l, Inc.*, 174 F.3d 1308, 1320

⁴ Now recodified as 35 U.S.C. § 112(f).

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(Fed. Cir. 1999); *see also In re Donaldson Co., Inc.*, 16 F.3d 1189, 1193–94 (Fed. Cir. 1994) (“[P]aragraph six applies regardless of the context in which the interpretation of means-plus-function language arises, i.e., whether as part of a patentability determination in the PTO or as part of a validity or infringement determination in a court.”). We construe such a limitation by determining what the claimed function is and identifying the structure or materials disclosed in the specification that correspond to the means for performing that function. *See Kemco Sales, Inc. v. Control Papers Co., Inc.*, 208 F.3d 1352, 1360 (Fed. Cir. 2000).

For computer-implemented inventions, this corresponding structure must be more than a general purpose computer or microprocessor. *See Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Rather, “[w]hen dealing with a ‘special purpose computer-implemented means-plus-function limitation,’ [the Federal Circuit] require[s] the specification to disclose the algorithm for performing the function.” *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1318 (Fed. Cir. 2013); *accord Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1384 (Fed. Cir. 2009) (“[W]hen a computer is referenced as support for a function in a means-plus-function claim, there must be some explanation of how the computer performs the claimed function.”).

Petitioner argues that the Specification of the ’089 patent does not identify particular structure corresponding to the functions recited in the means-plus-function limitations of claims 9–12. *Id.* Petitioner then identifies other claims as providing the structure corresponding to these limitations. Pet. 12–15 (citing to claims 13, 17, and 21 for disclosure of structure corresponding to “selecting means,” “determining means,”

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“reading means,” and “copying means”; citing to claims 15, 19, and 23 for disclosure of structure corresponding to “sending means”; and citing to claims 16, 20, and 24 for disclosure of structure corresponding to “second copying means”).

We invited Patent Owner to address the issue in its PO Response. Dec. 10–11. Patent Owner responded with a more detailed identification of structure for these terms and supported it with the testimony of Dr. Prasant Mohapatra, a Professor in the Department of Computer Science at the University of California, Davis (Ex. 2002, “Mohapatra Decl.”). PO Resp. 11–21. We address below Patent Owner’s evidence for each of the means-plus-function terms.

In reply, Petitioner argues that Patent Owner’s proposed constructions of means-plus-function terms “are improper because they do not point to any algorithm for making a relevancy determination.” Reply 6. Petitioner, however, does not address any means-plus-function term with specificity or offer any evidence rebutting Patent Owner’s proposals. At the oral hearing, Petitioner admitted that it did not introduce any evidence on whether a person of ordinary skill in the art would have considered the corresponding structure identified by Patent Owner to be sufficient. Tr. 24:6–21.

a. Two instances of “selecting means”

There are two instances of “selecting means” in claim 9. The function of the first “selecting means” is “selecting a first storage object of a first storage area.” We proceeded on the basis that the first instance of “selecting means” is computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 11.

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Patent Owner identifies block identifier 316A as corresponding to the selecting means. PO Resp. 12. According to Patent Owner and its Declarant, block identifier 316A receives, from an application program, database, or file system, a command for selecting a storage object and, in response, identifies a relevant block of data. *Id.* (citing Ex. 2002 ¶ 18). Patent Owner argues that a described “file dump” utility and a replication-aware database are specific examples using block identifiers that systematically read relevant blocks of data from storage areas. PO Resp. 12–13 (citing Ex. 2002 ¶ 18). Patent Owner further points to action 3.2 (“Identify Useful Blocks) of Figure 3, during which “block identifier utility 316A notifies file system 115A of the useful blocks.” Ex. 1001, 9:45–47. We note that action 3.2 follows action 3.1, in which “block identifier 316A identifies useful blocks stored in storage area 140A.” *Id.* at 9:24–25.

According to the ’089 patent:

While block identifier utility 316A is shown as directly accessing storage area 140A to perform this identification, one of skill in the art will understand that several intermediate steps may be performed to provide this functionality. For example, typically a program reading a data block will call an interface to a storage area manager, such as storage area manager 118A, which deals with directly accessing the physical device.

Id. at 9:25–32. As Patent Owner points out, block identifier 316A is described as a module associated with a computer system that has a processor executing software instructions. PO Resp. 13 (citing Ex. 1001, 6:29–32). Accordingly, we agree with Patent Owner and Dr. Mohapatra that the block identifier utility 316A is described in terms of specific algorithms implemented as instructions executed on a computer system for selecting a storage object from a storage area.

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The function of the second instance of “selecting means” is “selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object if the first storage object does not contain relevant data.” We proceeded on the basis that the second instance of “selecting means” is computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 12.

Patent Owner identifies block identifier 316A as corresponding to the second selecting means for substantially the same reasons as it advanced for the first selecting means. PO Resp. 14. For the same reasons, we agree.

Accordingly, we maintain our constructions of the first instance of “selecting means” and the second instance of “selecting means.”

b. “determining means”

The function of the “determining means” is “determining whether the first storage object contains relevant data.” We proceeded on the basis that “determining means” is computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 13.

Patent Owner and its declarant contend that the act of determining is the same as the act of identifying and that block identifier utility 316A corresponds to a determining means. PO Resp. 15 (citing Ex. 2002 ¶ 20). According to Patent Owner and its declarant, block identifier utility 316A identifies relevant blocks by directly accessing a physical storage device or calling an interface to a storage area manager, which access the physical

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storage device. PO Resp. 15–16 (citing Ex. 1001, 9:11–13, 9:25–32); Ex. 2002 ¶ 21.

The '089 patent specifically identifies block identifier utility 316A as corresponding to a determining means: “Block identifier utility 316A is representative of an identifier module, means or instructions for identifying relevant, useful blocks to a module reading the data.” Ex. 1001, 8:25–27. As explained above, in action 3.1 of Figure 3, “block identifier utility 316A identifies useful blocks stored in storage area 140A.” Ex. 1001, 9:24–25. The Specification further explains that

The identification of useful blocks is typically performed in response to a user command. A user command may be issued by a person or by an application providing a user interface. For example, a user interface may be provided to block identifier utility 316A and/or storage area replication facility 320A. A user command may start the resynchronization process, without necessarily requiring the user to be aware of the underlying implementation details.

Ex. 1001, 9:37–44. As explained above, action 3.1 is followed by action 3.2, in which “block identifier utility 316A notifies file system 115A of the useful blocks,” after which a file system initiates a read operation. *Id.* at 9:44–46. This is further described in conjunction with Figure 4.

Specifically, “[i]n ‘Identify Storage Object with Useful Contents’ step 410, an application or utility capable of identifying storage objects of data or information used for managing the data identifies a useful storage object.”

Id. at 10:16–19. As Patent Owner points out, block identifier 316A is described as a module associated with a computer system that has a processor executing software instructions. PO Resp. 16 (citing Ex. 1001, 6:29–32). Thus, we agree with Patent Owner and Dr. Mohapatra that the

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block identifier utility 316A is described in terms of specific algorithms implemented as instructions executed on a computer system for determining whether a storage object contains relevant data.

Accordingly, we maintain our construction of “determining means.”

c. “reading means”

The function of the “reading means” is “reading the first storage object if the first storage object contains relevant data.” We proceeded on the basis that “reading means” is computer software executing on a general purpose computer implementing an application, database, file system, and/or storage area manager, and equivalents thereof. Dec. 13–14.

Patent Owner identifies application 112A, database 114A, file system 115A, and/or storage manager 118A as corresponding to a reading means. PO Resp. 16–17 (citing Ex. 2002 ¶ 22). The ’089 patent specifically identifies these components as corresponding to a reading means:

application 112A, database 114A, and/or file system 115A can read the data (in conjunction with storage area manager 118A), either directly or via one of the other components. For example, application 112A may use both file system 115A and storage area manager 118A to read the data. Therefore, application 112A, database 114A, file system 115A and/or storage area manager 118A can also be considered to form a reading module, means, or instructions.

Ex. 1001, 8:28–36.

As shown in Figure 3, at action 3.2, block identifier utility 316A notifies file system 115A that relevant blocks in storage area 140A have been identified. Ex. 1001, 9:45–46. At action 3.3, file system 115A initiates a read operation on the blocks of memory identified by block identifier

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utility 316A. *Id.* at 9:46–47. In action 3.6, storage area manager 118A reads the identified relevant blocks from storage area 140A. *Id.* at 53–55. As Patent Owner points out, each of these components is described as a module associated with a computer system that has a processor executing software instructions. PO Resp. 17–18 (citing Ex. 1001, 6:29–32). Thus, we agree with Patent Owner and Dr. Mohapatra that application 112A, database 114A, file system 115A, and/or storage manager 118A are described in terms of specific algorithms implemented as instructions executed on a computer system for reading a first storage object if the first storage object contains relevant data. Accordingly, we maintain our construction of “reading means.”

d. “copying means”

The function of the “copying means” is “copying contents of the first storage object to a second storage object of a second storage area if the first storage object contains relevant data.” We proceeded on the basis that “copying means” is computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 14.

Patent Owner argues that storage area replication facilities 320A and/or 320B correspond to the “copying means.” PO Resp. 18. The ’089 patent specifically identifies these components as corresponding to the copying means: “Either or both or storage area replication facility 320A and 320B are representative of a copying module, means or instructions used to replicate data to a secondary node.” Ex. 1001, 8:51–53. We agree with Patent Owner and its declarant (PO Resp. 18–19 (citing Ex. 2002 ¶ 23)),

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that, in connection with actions 3.4–3.9 of Figure 3, the '089 patent describes storage area replication facilities 320A and 320B in terms of an algorithm for copying contents of a first storage object to a second storage object:

[I]n action 3.4, storage area replication facility 320A intercepts, or traps, the read operation because storage area replication facility 320A is operating in “copy on read” mode. In action 3.5, storage area replication facility 320A allows the read operation to pass through to storage area manager 118A. In action 3.6, storage area manager [118A] reads the data from the identified relevant blocks from storage area 140A.

In action 3.7, the data read (data 342) are intercepted by storage area replication facility 320A. In action 3.8, storage area replication facility 320A provides data 342 to storage area replication facility 320B on secondary node 110B. In action 3.9, storage area replication facility 320B on secondary node 110B notifies storage area manager 118B on secondary node 110B to write the copy of the data read to storage area 140B on secondary node 110B.

Id. at 9:48–63. Accordingly, we maintain our construction of “copying means.”

e. “sending means”

Claim 11 depends from claim 9 and recites “sending means.” The function of the sending means is “sending the contents over a network connection from the first storage area to the second storage area.” We proceeded on the basis that “sending means” is computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 15.

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Patent Owner identifies storage area replication facility 320A as corresponding to the sending means. PO Resp. 20. As explained above, storage area replication facility 320A is described in terms of an algorithm in conjunction with actions 3.4–3.9, depicted in Figure 3. Specifically, in action 3.8, “storage area replication facility 320A provides data 342 to storage area replication facility 320B on secondary node 110B.” Ex. 1001, 9:57–59. According to Dr. Mohapatra, Figure 3 depicts storage area replication facility 320A sending the data over a network. Ex. 2002 ¶ 24.

We agree with Patent Owner and Dr. Mohapatra that a skilled artisan would understand storage area replication facility 320A to be described in terms of specific algorithms implemented as instructions executed on a computer system for sending the contents of a storage object over a network connection from a first storage area to a second storage area. Accordingly, we maintain our construction of “sending means.”

f. “second copying means”

Claim 12 depends from claim 9 and recites “second copying means.” The function of the second copying means is “copying second contents of the first storage object to the second storage object if the second contents are relevant data.” We proceeded on the basis that “second copying means” is computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 15–16.

Citing to its Declarant, Patent Owner contends the second copying means corresponds to the same structure as the copying means recited in claim 9. PO Resp. 21 (citing Ex. 2002 ¶ 25). We agree that both copying

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means correspond to the same structure recited in the Specification and, accordingly, maintain our construction of “second copying means.”

5. “Modules” and “Instructions” Terms

Claim 13 recites a “selecting module,” “determining module,” “reading module,” “copying module,” and second instance of “selecting module.” Claim 15 recites a “sending module.” Claims 17 and 21 each recite “selecting instructions,” “determining instructions,” “reading instructions,” “copying instructions,” and second instances of “selecting instructions.” Claims 19 and 23 each recite “sending instructions.”

We preliminarily construed each “module” of claims 13–16 to be a computer software component, implemented on a computer, configured to carry out the function recited in the claim element. For example, “a selecting module configured to select a first storage object of a first storage area” is a computer software component, implemented on a computer, configured to select a first storage object of a first storage area. Similarly, we preliminarily construed each set of “instructions” of claims 17–24 to be software code configured to carry out the function recited in the claim element. For example, the “selecting instructions configured to select a first storage object of a first storage area” of claims 17 and 21 are software code configured to select a first storage object of a first storage area.

Petitioner and Patent Owner do not dispute these constructions. We see no reason to change these constructions based on the full record and maintain them for purposes of this Decision.

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*B. Asserted Grounds of Unpatentability**1. Anticipation by Gold*

Petitioner asserts that Gold anticipates each of claims 1–24. Pet. 15–16. Petitioner supports its Petition with the testimony of Dr. Jon B. Weissman, a Computer Science professor at the University of Minnesota (Ex. 1009, “Weissman Decl.”). For the reasons below, Petitioner has shown, by a preponderance of the evidence, that Gold discloses each limitation of claims 1–24.

a. Overview of Gold

Gold describes a technique for backing up computer files stored on a client computer to tape media connected to the client by a network. Ex. 1003, p. 1, Abstract. Figure 3, reproduced below, illustrates an example:

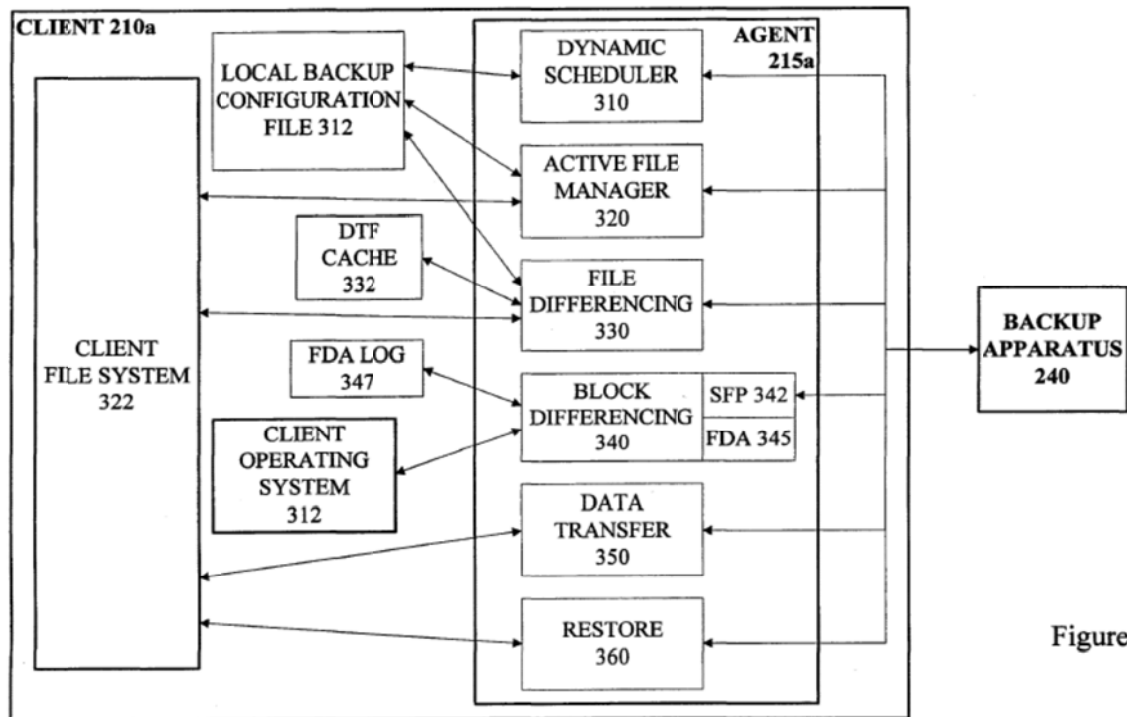


Figure 3

Figure 3 is a block diagram of a client. *Id.* at 3:15–16.

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As shown in Figure 3, client 210a includes dynamic scheduler module 310 that assesses the client's resources at a scheduled target time to determine if a client backup can run without impacting seriously the system performance. *Id.* at 1:24–31. If a backup can be performed, file differencing module (“FDM”) 330 selects the files on the client that will be backed up by determining which files have changed or have been added since a previous backup. *Id.* at 7:9–10. FDM 330 identifies files by reading a current directory tree of local client file system 332, which includes entries identifying each file's time and date of modification. *Id.* at 7:11–13. Those times and dates are compared to cached times and dates stored in a directory tree file. *Id.* FDM 330 also can filter out files, such as temporary files, Internet cache files, and swap files, that do not need to be backed up. *Id.* at 7:16–19.

FDM 330 also can communicate with tape backup apparatus 240 to determine whether a file already is backed up on the tape media (and, thus, backup would be redundant). *Id.* at 7:20–23. FDM 330 sends tape backup apparatus 240 a list of files to be backed up, along with calculated cyclic redundancy check (“CRC”) codes (corresponding to file name, date and time stamp, and file size information). *Id.* at 7:23–25. The tape backup apparatus returns a list of the files it contains that match those on FDM 330's list, along with CRC checksums (corresponding to the actual data in the files). *Id.* at 7:26–28. For each file on tape backup apparatus 240's list that might be redundant, FDM 330 calculates a CRC checksum. *Id.* at 7:28–30. If the checksums match, the same version of the same file is already backed up on the tape media, and backing it up again would be unnecessary. *Id.*

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b. Anticipation of Claims 1–24

We find that Gold’s hard disk drive, on which local file system (client file system 322) resides, is a “first storage area” and that Gold’s description of FDM 330 selecting files to be backed up by determining which files have changed or have been added, constitutes a disclosure of “selecting a first storage object of a first storage area,” as recited in claims 1 and 7. Ex. 1003, 5:9–10, 7:9–11. Similarly, we find that Gold discloses a “selecting means for selecting a first storage object of a first storage area,” recited in claim 9; a “selecting module configured to select a first storage object of a first storage area,” recited in claim 13; and “selecting instructions configured to select a first storage object of a first storage area,” recited in claims 17 and 21.

Regarding the means-plus-function limitations of claims 9–12, Patent Owner confirmed at the oral hearing that it has not introduced evidence or argument disputing that Gold discloses the particular algorithms corresponding to those limitations, other than its arguments and evidence directed to Gold failing to disclose “relevant data,” as discussed below. Tr. 52:24–54:21. We find that the structure and algorithms in Gold identified by Petitioner as disclosing the method steps of claims 1–3 and the structural elements of claims 17–20 (detailed below) also are the same as the structure and algorithms corresponding to the analogous means-plus-function limitations of claims 9–12. *See* Pet. 25–29.

The parties dispute whether Gold discloses “determining whether the first storage object contains relevant data,” as recited in claims 1 and 7, and recited similarly in the “determining means” of claim 9, the “determining module” of claim 13, and the “determining instructions” of claims 17 and

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21. Petitioner contends that Gold’s description of filtering a list of files for excluded files (e.g., temporary files and Internet cache files) discloses this limitation. Pet. 16. Specifically, Dr. Weissman testifies that filtering out any such files that do not need to be backed up constitutes filtering out irrelevant files. Ex. 1009 ¶ 34.

Patent Owner makes two arguments regarding “relevant data.” First, Patent Owner contends that Gold does not disclose a system in which a storage object is read only after it is identified as relevant. PO Resp. 22–26. Second, Patent Owner contends that Gold’s description of filtering out files that will not be backed up does not constitute determining whether storage objects contain relevant data. PO Resp. 22–26.

Regarding the second argument, Patent Owner argues that Gold’s filter does not take into account the context of an application that will make use of the files. *Id.* at 27. According to Patent Owner, determining whether to back up a file based on whether it has changed since a previous back up does not take into account the proper context. *Id.* at 28. At the oral hearing, Patent Owner clarified its distinction:

what is relevant to the backup application is the data that it relies upon for its operation rather than the data it operates upon. The data that it operates upon is merely . . . what is being backed up. Whereas the data that is relevant for it would be its operating parameters, for example.

Tr. 33:25–34:5. However, as explained in Section II.A.1, “relevant data,” or “data relevant to the purpose for which storage objects are being copied,” includes data used by an application to function and data upon which an application operates. Thus, we are not persuaded by Patent Owner’s second argument.

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Regarding Patent Owner's first argument, Patent Owner contends that Gold describes reading a file to determine whether it should be backed up. Thus, assuming that determining whether a file should be backed up is a relevancy determination about a storage object, such a determination is not made prior to reading the storage object. PO Resp. 23–25. At the oral hearing, Patent Owner argued that Petitioner's proposed application of Gold to claim 1 "would run afoul . . . of the prohibition on reading recited later in the claim if relevance is not determined." Tr. 37:9–11. Presumably, Patent Owner refers to the claim language "if the first storage object does not contain relevant data, selecting a second storage object of the first storage area *without reading the first storage object*," recited in claim 1 (emphasis added), and similar language recited in claims 7, 9, 13, 17, and 21.

Petitioner disputes that Gold discloses reading a file to determine whether to back it up. Instead, Petitioner argues, Gold discloses reading file attributes in a directory, similarly to the way described in the '089 patent. Reply 7–9 (citing Ex. 1003, 7:9–13; Ex. 1001, 9:24–36). We agree. In determining whether to back up a file, Gold "achieves this by reading the current directory tree of the local file system 322 and checking each file's modified time/date against the entries in a cached Directory Tree File (DTF) 332 generated from the last backup." Ex. 1003, 7:11–13. The '089 patent determines relevancy of a file in the same manner: "block identifier utility 316A is shown as directly accessing storage area 140A to perform this identification." Ex. 1001, 9:25–27.

In any case, Petitioner argues, the claims of the '089 patent are open-ended "comprising" claims that do not preclude reading a storage object to determine its relevance. Reply 9–10. According to Petitioner, if the

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determination to back up a file includes a read of the file, the file is read a second time when a data transfer module transfers the backup data to a tape backup apparatus. *Id.*; Pet. 18 (citing Ex. 1003, 9:13–14; Ex. 1009 ¶ 37).

We agree with Petitioner. “[T]he word ‘comprising’ in the transitional phrase of a patent claim creates a presumption that the body of the claim is open.” *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1350 (Fed. Cir. 2001). The Federal Circuit has cautioned, however, that “[c]omprising’ is not a weasel word with which to abrogate claim limitations.” *Spectrum Int’l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1380 (Fed. Cir. 1998). In this case, the claim language “if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object” pertains to the behavior of the claimed method after a relevancy determination has been made. Patent Owner does not explain persuasively how this language addresses the behavior of the method prior to a relevancy determination. We conclude that nothing in claim 1 precludes reading before or during a relevancy determination. After considering Patent Owner’s arguments, we nevertheless are persuaded that Gold discloses “determining whether the first storage object contains relevant data,” as recited in claims 1 and 7 and the similar limitations in claims 9, 13, 17, and 21. *See* Ex. 1003, 7:16–17; Ex. 1009 ¶ 34.

We also find that Gold discloses, after this determination, “if the first storage object contains relevant data . . . reading the first storage object,” as recited in claim 1. *See* Ex. 1003, 9:13–14, 18:23–26; Ex. 1009 ¶ 36. Specifically, we agree with Dr. Weissman that Gold’s description of transferring a file to be backed up from the client to the tape backup

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apparatus necessarily requires reading that file, and, thus, Gold discloses “reading the first storage object,” as recited in claim 1. Ex. 1009 ¶ 36. For the same reasons, Gold discloses the “reading means,” “reading module,” and “reading instructions,” as recited in claims 9, 13, 17, and 21. *See* Pet. 26, 29–30, 34, 38.

We further find that Gold’s description of sending files to be backed up to a data transfer module to be compressed and sent to the tape backup apparatus discloses “copying contents of the first storage object to a second storage object of a second storage area,” as recited in claim 1. Ex. 1003, 9:5–14; Pet. 18–19. For the same reasons, Gold discloses the “copying means,” “copying module,” and “copying instructions” of claims 9, 13, 17, and 21. *See* Pet. 26–27, 30–31, 34–35, 38–39.

Because the files excluded by Gold’s FDM, which do not contain relevant data, are filtered rather than read and copied, Gold also discloses “if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object,” as recited in claims 1 and 7. Ex. 1003, 7:16–19; Pet. 19. For the same reasons, Gold discloses the second “selecting means,” second “selecting module,” and second “selecting instructions” of claims 9, 13, 17, and 21. *See* Pet. 27, 31, 35, 39.

Petitioner points to Gold’s description of FDM 330 consulting with the tape backup apparatus to determine whether a file to be backed up is already on the tape as constituting a disclosure of the following limitations of claim 7:

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“identifying a second storage object of a second storage area corresponding to the first storage object of the first storage area”;

“wherein contents of the second storage object were previously copied from contents of the first storage object”;

“comparing the contents of the first storage object to the contents of the second storage object”; and

“when the contents of the first storage object and the contents of the second storage object do not match, copying the contents of the first storage object to the second storage object.”

Pet. 17, 22–23 (citing Ex. 1003, 7:23–30, 8:30–37, 9:5–23, 10:52–59).

Petitioner supports its contentions with the testimony of Dr. Weissman.

Ex. 1009 ¶ 36. Patent Owner does not present argument or evidence rebutting Petitioner’s evidence as to these limitations. We are persuaded by Petitioner’s evidence that Gold discloses the additional limitations of claim 7.

In sum, we have considered the evidence and argument presented by Petitioner and Patent Owner. We are persuaded that Petitioner’s evidence shows that Gold discloses each limitation of claims 1, 7, 9, 13, 17, and 21, arranged as in those claims. We are not persuaded by Patent Owner’s arguments that Gold fails to disclose claim limitations regarding “relevant data.” Accordingly, we determine that Petitioner has proved by a preponderance of the evidence that claims 1, 7, 9, 13, 17, and 21 are anticipated by Gold.

Claims 2–6 depend from claim 1; claim 8 depends from claim 7; claims 10–12 depend from claim 9; claims 14–16 depend from claim 13; claims 18–20 depend from claim 17; and claims 22–24 depend from claim 21. Patent Owner does not present any evidence or argument regarding

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these dependent claims specifically. Having reviewed Petitioner's evidence of unpatentability for these dependent claims (Pet. 19–22, 24–25, 27–29, 31–32, 35–37, 39–41), we conclude that Petitioner also has proved by a preponderance of the evidence that claims 2–6, 8, 10–12, 14–16, 18–20, and 22–24 are anticipated by Gold.

2. Anticipation by Pruett

Petitioner contends that Pruett anticipates claims 1–3, 6, 7, 13, 15, and 16. Pet. 41. Petitioner supports its Petition with the testimony of Dr. Weissman. For the reasons below, Petitioner has shown, by a preponderance of the evidence, that Pruett discloses each limitation of claims 1–3, 6, 7, 13, 15, and 16.

a. Overview of Pruett

Pruett describes a technique for automatically synchronizing files and directories between two computers connected by a network. Ex. 1005, Abstract. Figure 1, reproduced below, illustrates an example:

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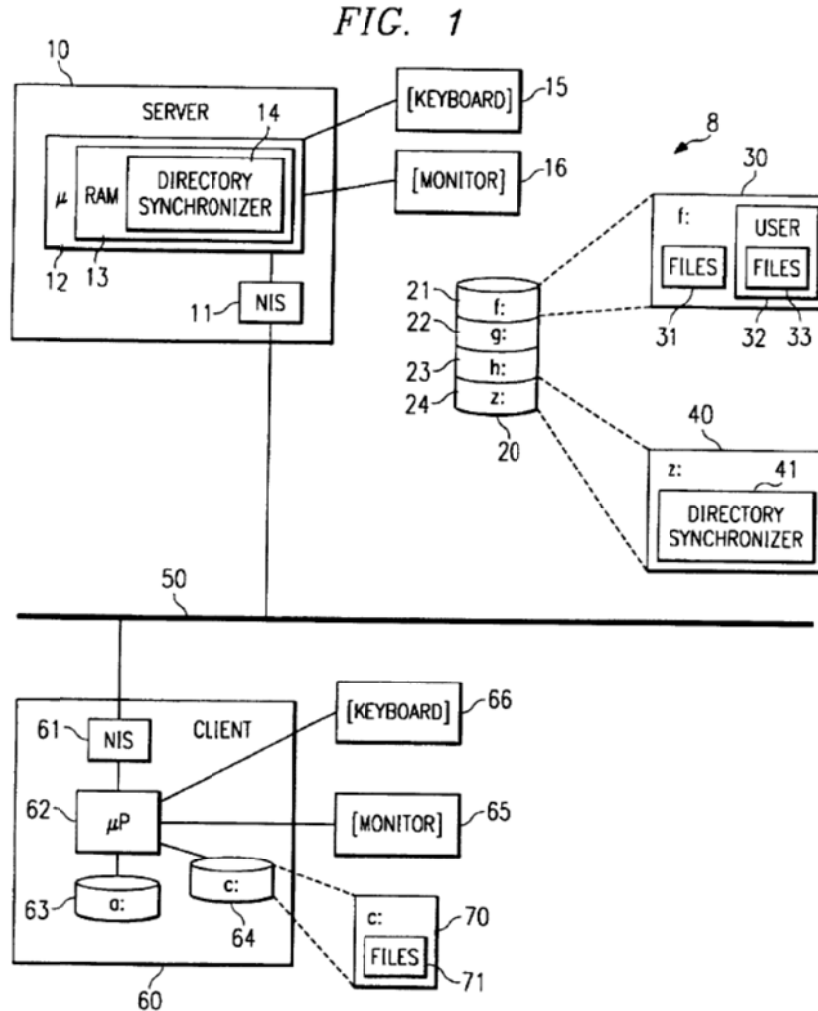


Figure 1 is a block diagram of a local area network. *Id.* at 2:35–36.

File directory 30 stored in mass storage device 20 on file server 10 can be synchronized with a directory stored in hard disk drive 64 on client computer 60. *Id.* at 2:43–67. A user initiates a synchronization by entering, on keyboard 66 of client computer 60, a command invoking synchronizing program 41 and identifying the source and target directories along with any optional “qualifiers” that affect the synchronization. *Id.* at 3:1–39. One of those qualifiers, the command sequence “/H,” specifies that hidden files or

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directories in the source directory are not synchronized with the target directory. *Id.* at 8:29–40.

Synchronizing program 41 proceeds by identifying whether a file in the source directory is a subdirectory, and, if not, determining whether a file with that name exists in the target directory. *Id.* 6:18–30. If the file does not exist in the target directory, it is copied from the source directory to the target directory. *Id.* at 6:31–33. If the file exists in the target directory, the synchronizing program determines whether the files in the source and target directories have identical contents (e.g., by comparing date stamps of the files), and, if so, does not copy the contents of the source file into the target file. *Id.* at 6:42–64. Synchronizing program 41 continues this process sequentially through the files in the source directory until there are no more files to synchronize. *Id.* at 8:22–28. If the “/H” qualifier is included, and a file is hidden, the synchronizing program skips determining whether the hidden file is a subdirectory, determining whether it is already in the target directory, or copying the file to the target directory. *Id.* at 8:29–40; Fig. 2B (path 200h).

The user also can specify, using a “/I” qualifier, an “action” file that specifies an action to be taken when the synchronizing program reaches various source or target subdirectories. *Id.* at 3:55–65. One of the actions specified in the action file can be to ignore a source directory or subdirectory. *Id.* at 5:32–54. If a directory is to be ignored, the synchronizing program skips determining whether the files in that directory are subdirectories, determining whether they are already in the target directory, or copying the files to the target directory. *Id.* at 5:50–56; Fig. 2A (path 130i).

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b. Anticipation of Claims 1–3, 6, 7, 13, 15, and 16

We find that the source directory 32 of the server 10’s mass storage device 20 in Pruett is a first storage area and a subdirectory or file in that source directory is a first storage object, as recited in claims 1, 7, and 13. Pruett’s description of determining whether a file in the source directory is a file or subdirectory and subsequently selecting the file or subdirectory for processing is a disclosure of “selecting a first storage object of a first storage area,” as recited in claims 1 and 7, and “a selecting module” as recited in claim 13. Ex. 1005, 5:21–31, 6:18–26, 8:22–28; Pet. 43–44, 49, 52–53.

The parties dispute whether Pruett discloses “determining whether the first storage object contains relevant data,” as recited in claims 1 and 7, or the “determining module configured to determine whether the first storage object contains relevant data,” as recited in claim 13. Petitioner contends that Pruett’s description of skipping hidden files and only analyzing and copying non-hidden files discloses these limitations. Pet. 44–45, 49–50, 53.

Patent Owner contends that Petitioner offers insufficient evidence to equate Pruett’s hidden files with files that are not relevant. PO Resp. 29. According to Patent Owner, “[s]imply because a user does not wish to back up a particular file or directory (hidden or otherwise) does not mean that the application that will make use of that file does not consider the file to be relevant.” *Id.* at 30. Patent Owner argues that Pruett’s determination as to whether to copy a file is made by the user according to whether the user wishes to back up the file, rather than as to the role the file would play in an application. *Id.*

In reply, Petitioner argues that nothing in the claim language precludes a relevancy determination that is made pursuant to a user

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configuration. Reply 12. We agree with Petitioner. As explained in Section II.A.1, “relevant data” are data relevant to the purpose for which storage objects are being copied, and include data used by an application to function and data upon which an application operates. If a user, through configuration flags, indicates to a backup application that certain files are not to be backed up, the user is indicating that data not flagged for exclusion are relevant to the purpose for which the data are being copied. Patent Owner does not point to anything in the claim language or Specification of the ’089 patent precluding a user from making this contextual consideration.

At the oral hearing, Patent Owner clarified its argument, stating that:

[w]e are not taking the position that a user selection is somehow precluded by the claims. Our argument with respect to Pruet really is that the Petitioner has bootstrapped the notion of copying to provide relevance. In other words, because the file is copied, somehow it is relevant. Whereas the claim requires the opposite. Relevance has to be determined prior to copying.

Tr. 47:2–9. We are not persuaded by this argument. As can be seen in Figure 2B, Pruet’s method makes a determination as to whether a file is hidden (and thus is not subject to backup) before copying the file. *See also* Ex. 1005, 8:29–40:

Returning to step 200 in FIG. 2A, if a “/H” qualifier was specified upon execution, indicating a desire to synchronize only those files which are not “hidden,” then the method proceeds to decisional step 205, as illustrated by path 200h. At decisional step 205, it is determined whether the “hidden” tag for the currently selected source file has been triggered, indicating that the currently selected file is a hidden file. If the file is not hidden, the method proceeds to decisional step 210. If the file is hidden, the method proceeds to decisional step 270. Thus, if the user has included the “/H” qualifier, hidden files in

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the source directory are not synchronized with the target directory.

Copying (at steps 230 and 242 of Figure 2B) only takes place if the method proceeds to step 210 rather than 205. Thus, relevance is determined before copying. We find that Pruett discloses “determining whether the first storage object contains relevant data,” as recited in claims 1 and 7, and the similar limitation in claim 13.

We also find that Pruett discloses, after this determination, “if the first storage object contains relevant data, . . . reading the first storage object,” and “when the reading is completed, copying contents of the first storage object to a second storage object of a second storage area” as recited in claim 1. *See* Ex. 1005, 6:27–33; 6:64–67. We agree with Dr. Weissman (Ex. 1009 ¶ 56) that a file must be read before it can be copied. *See also* Ex. 1005, 3:16–19 (“To completely synchronize the target and source directories using program 41, the user should have . . . read permission for the source directory.”). For the same reasons, Pruett discloses the “reading module” and “copying module” of claim 13. *See* Pet. 53–54.

We further find that Pruett’s description of sequentially processing files and sub-directories, and skipping those that are hidden, constitutes a disclosure of “if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object,” as recited in claims 1 and 7. Ex. 1005, 5:43–44, 8:37–40, 9:31–37; Pet. 46, 52. For the same reasons, Pruett discloses the second “selecting module” recited in claim 13. *See* Pet. 54–55.

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Petitioner points to Pruett’s description of identifying files with the same name in both the source and target directories, comparing the time stamps of those files, and copying the contents of the source files to the target files when the time stamps do not match, as constituting a disclosure of the following limitations of claim 7:

“identifying a second storage object of a second storage area corresponding to the first storage object of the first storage area”;

“wherein contents of the second storage object were previously copied from contents of the first storage object”;

“comparing the contents of the first storage object to the contents of the second storage object”; and

“when the contents of the first storage object and the contents of the second storage object do not match, copying the contents of the first storage object to the second storage object.”

Pet. 50–52 (citing Ex. 1005, 5:45–49, 5:58–60, 6:2730, 6:42–67, 7:38–41).

Patent Owner does not present argument or evidence rebutting Petitioner’s evidence as to these limitations. We are persuaded by Petitioner’s evidence that Pruett discloses the additional limitations of claim 7.

In sum, we have considered the evidence and argument presented by Petitioner and Patent Owner. We are persuaded that Petitioner’s evidence shows that Pruett discloses each limitation of claims 1, 7, and 13, arranged as in those claims. We are not persuaded by Patent Owner’s arguments that Pruett fails to disclose claim limitations regarding “relevant data.” Accordingly, we determine that Petitioner has proved by a preponderance of the evidence that claims 1, 7, and 13 are anticipated by Pruett.

Claims 2, 3, and 6 depend from claim 1; claims 15 and 16 depend from claim 13. Patent Owner does not present any evidence or argument

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regarding these dependent claims specifically. Having reviewed Petitioner's evidence of unpatentability for these dependent claims (Pet. 46–49, 55–56), we conclude that Petitioner also has proved by a preponderance of the evidence that claims 2, 3, 6, 15, and 16 are anticipated by Pruet.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 are unpatentable based on the following grounds of unpatentability:

- (1) Claims 1–24 as anticipated under 35 U.S.C. § 102(b) by Gold; and
- (2) Claims 1–3, 6, 7, 13, 15, and 16 as anticipated under 35 U.S.C. § 102(b) by Pruet.

IV. ORDER

For the reasons given, it is

ORDERED, based on a preponderance of the evidence, that claims 1–24 of U.S. Patent No. 7,032,089 B1 are held unpatentable; and

FURTHER ORDERED, because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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PROOF OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing paper entitled

APPELLANT'S BRIEF

was filed with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF SYSTEM. Counsel registered with the CM/ECF system have been served by operation of the Court's CM/ECF SYSTEM per Fed. R. App. P. 25 and Fed. Cir. R. 25(c) on the 26th day of June 2015.

Date: June 26, 2015

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitations of Federal Rule of Appellate Procedure 32(a)(7)(B) and contains 7498 words (exclusive of the corporate disclosure statement, table of contents, table of authorities, addendum, proof of service, and this certification).

This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5), and the type-style requirements of Federal Rule of Appellate Procedure 32(a)(6).

The brief has been prepared in a proportionally spaced typeface using Microsoft® Word for Mac ver. 15.11 in 14-point Adobe Garamond Pro font.

Respectfully submitted,

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